

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION FOR LETTERS PATENT

**Uniform Media Portal for a Gaming System**

Inventor(s):

Victor K. Blanco

ATTORNEY'S DOCKET NO. MS1-762US

1 **COPYRIGHT NOTICE**

2 A portion of the disclosure of this patent document contains material which  
3 is subject to copyright protection. The copyright owner has no objection to the  
4 facsimile reproduction by anyone of the patent document or the patent disclosure,  
5 as it appears in the Patent and Trademark Office patent file or records, but  
6 otherwise reserves all copyright rights whatsoever.

7  
8 **TECHNICAL FIELD**

9 This invention relates to gaming systems, and more particularly, to user  
10 interface models that facilitate user interaction with the gaming systems.

11  
12 **BACKGROUND**

13 Gaming systems currently available on the market are capable of playing  
14 game discs, music CDs, and movie DVDs from a disc drive. For example, the  
15 Playstation® 2 gaming system from Sony Corporation provides the ability to play  
16 games, music, and video titles from a disc inserted in the console. These gaming  
17 systems are designed to play whatever title is in the disc drive. Thus, when a user  
18 inserts a disc into the drive, the gaming system simply provides the ability to  
19 “play” or “launch” the title regardless of whether the disc is a game, movie, or  
20 music disc. In this manner, the media currently in the drive defines the default  
21 context of the user interface (UI) presented to the user.

22 Microsoft Corporation recently announced its Xbox™ gaming system that  
23 is equipped with a hard disk drive to enhance gaming, and broadband connectivity  
24 to facilitate online gaming. With these additions, various titles for games, movies,  
25 and music can be played from many different sources including the hard disk

1 drive, portable media (e.g., CD, DVD, game disc), controller-based memory units,  
2 or online sources. With these improved capabilities, the conventional UI model  
3 that defaults to a “play” or “launch” metaphor based on the media type in the disc  
4 drive is now too vague. For instance, does the user want to play the game disc in  
5 the portable media drive, or an audio file that is stored on the hard disk, or a movie  
6 streamed from an online source?

7 Accordingly, there is a need for an improved UI model for gaming systems  
8 that provides uniform user experience across the various media types.

## 9 10 **SUMMARY**

11 A uniform media portal model for a gaming system promotes a consistent  
12 user experience among various entertainment areas. The media portal model  
13 offers a convenient way to access content from multiple different media types—  
14 game data, audio data, and video data—regardless of the media type inserted into  
15 the gaming system’s portable media drive.

16 In the described implementation, the gaming system includes a game  
17 console and one or more controllers. The game console is equipped with a hard  
18 disk drive, a portable media drive, and broadband connectivity. The uniform  
19 media portal is implemented as a console application stored on the hard disk drive  
20 and loaded when the game console is powered on.

21 The console application presents a main menu identifying five primary  
22 areas: games, music, movies, memory, and settings. Conceptually, beneath the  
23 main menu, the content stored on the various memory devices is logically  
24 presented according to media type. Navigation to the games area, for example,  
25 results in a menu that lists a collection of game titles available to be played on the

1 game console. Navigation to the music and movies areas results in a very similar  
2 experience in that the user is presented with collections of music titles and movie  
3 titles.

4 The titles are displayed uniformly, regardless of whether they are stored on  
5 the hard drive, a portable medium (e.g., game disc, CD, or DVD) in the disc drive,  
6 at an online source, or on a memory unit (MU). Grouping the content by media  
7 type and presenting collection-based menus for each media type provides a  
8 consistent look and feel across the game, music, and movie areas. Once the user  
9 has selected a specific area, additional UI screens offer choices that are specialized  
10 to the particular media type.

#### 11 12 **BRIEF DESCRIPTION OF THE DRAWINGS**

13 Fig. 1 illustrates a gaming system that implements a uniform media portal  
14 architecture.

15 Fig. 2 is a block diagram of the gaming system.

16 Fig. 3 illustrates a network gaming system in which the Fig. 1 gaming  
17 system is connected via a network to other consoles and services.

18 Fig. 4 illustrates a navigation hierarchy employed by the uniform media  
19 portal architecture.

20 Fig. 5 is a flow diagram of an initial system level evaluation process  
21 executed when the gaming system is initially powered on.

22 Fig. 6 is a flow diagram of a media level evaluation process that is executed  
23 after the system level evaluation process.

24 Fig. 7 illustrates a graphical user interface depicting the main menu of the  
25 gaming system.

Fig. 8 is a flow diagram of the main menu navigation process that is performed after the system level and media level evaluation processes are completed.

Fig. 9 illustrates a graphical user interface depicting a games collection menu that is accessible from the main menu.

Fig. 10 illustrates a graphical user interface depicting a games option menu that is accessible from the games collection menu.

Fig. 11 illustrates a graphical user interface depicting an exemplary screen display that can be exploited by title developers to present title-specific information.

Fig. 12 illustrates a graphical user interface depicting a music collection menu that is accessible from the main menu.

Fig. 13 illustrates a graphical user interface depicting a music player that is accessible from the music collection menu.

Figs. 14 and 15 illustrate graphical user interfaces depicting screen displays used to assist the user in creating a soundtrack.

Fig. 16 illustrates a graphical user interface depicting a memory collection menu that is accessible from the main menu.

Fig. 17 illustrates a graphical user interface depicting a memory contents menu that is accessible from the memory collection menu.

Fig. 18 illustrates a graphical user interface depicting a file options menu that is accessible from the memory contents menu.

Fig. 19 illustrates a graphical user interface depicting a settings collection menu that is accessible from the main menu.

1 Fig. 20 illustrates a graphical user interface depicting a clock settings menu  
2 that is accessible from the settings collection menu.

3 Fig. 21 illustrates a graphical user interface depicting a language settings  
4 menu that is accessible from the settings collection menu.

5 Fig. 22 illustrates a graphical user interface depicting an audio settings  
6 menu that is accessible from the settings collection menu.

7 Fig. 23 illustrates a graphical user interface depicting a video settings menu  
8 that is accessible from the settings collection menu.

9 Fig. 24 illustrates a graphical user interface depicting a parental control  
10 settings menu that is accessible from the settings collection menu.

## 11 **DETAILED DESCRIPTION**

12 The following discussion is directed to a uniform media portal model for a  
13 gaming system that promotes a consistent user experience among various  
14 entertainment areas (e.g., gaming, movie playback, music playback). The uniform  
15 media portal model addresses the problem of adding a large hard disk to a gaming  
16 system where the storage devices have typically been small, removable memory  
17 units. With the additional space, a user can store persistent data on the hard disk  
18 relating to game titles, music files, and video files.

19 Generally, the uniform media portal model offers a consistent graphical  
20 user interface and an intuitive media-themed navigation hierarchy that logically  
21 portrays the contents of the game console according to media types (e.g., game  
22 data, video data, audio data, etc.). The model offers a clear distinction among  
23 multiple available media types stored on various memory devices (e.g., hard disk  
24 drive, portable media drive, portable memory units), regardless of what media type  
25

1 is currently loaded into the game console's portable disc drive. The model further  
2 provides a user interface that graphically depicts the various memory devices and  
3 their respective capacities.

### 4 5 Gaming System

6 Fig. 1 shows an exemplary gaming system 100. It includes a game console  
7 102 and up to four controllers, as represented by controllers 104(1) and 104(2).  
8 The game console 102 is equipped with an internal hard disk drive and a portable  
9 media drive 106 that supports various forms of portable storage media as  
10 represented by optical storage disc 108. Examples of suitable portable storage  
11 media include DVD, CD-ROM, game discs, and so forth.

12 The game console 102 has four slots 110 on its front face to support up to  
13 four controllers, although the number and arrangement of slots may be modified.  
14 A power button 112 and an eject button 114 are also positioned on the front face  
15 of the game console 102. The power button 112 switches power to the game  
16 console and the eject button 114 alternately opens and closes a tray of the portable  
17 media drive 106 to allow insertion and extraction of the storage disc 108.

18 The game console 102 connects to a television or other display (not shown)  
19 via A/V interfacing cables 120. A power cable 122 provides power to the game  
20 console. The game console 102 may further be configured with broadband  
21 capabilities, as represented by the cable or modem connector 124 to facilitate  
22 access to a network, such as the Internet.

23 Each controller 104 is coupled to the game console 102 via a wire or  
24 wireless interface. In the illustrated implementation, the controllers are USB  
25 (Universal Serial Bus) compatible and are connected to the console 102 via serial

1 cables 130. The controller 102 may be equipped with any of a wide variety of  
2 user interaction mechanisms. As illustrated in Fig. 1, each controller 104 is  
3 equipped with two thumbsticks 132(1) and 132(2), a D-pad 134, buttons 136, and  
4 two triggers 138. These mechanisms are merely representative, and other known  
5 gaming mechanisms may be substituted for or added to those shown in Fig. 1.

6 A memory unit (MU) 140 may be inserted into the controller 104 to  
7 provide additional and portable storage. Portable memory units enable users to  
8 store game parameters and port them for play on other consoles. In the described  
9 implementation, each controller is configured to accommodate two memory units  
10 140, although more or less than two units may be employed in other  
11 implementations.

12 The gaming system 100 is capable of playing, for example, games, music,  
13 and videos. With the different storage offerings, titles can be played from the hard  
14 disk drive or the portable medium 108 in drive 106, from an online source, or from  
15 a memory unit 140. A sample of what the gaming system 100 is capable of  
16 playing back include:

- 18 1. Game titles played from CD and DVD discs, from the hard disk drive,  
19 or from an online source.
- 20 2. Digital music played from a CD in the portable media drive 106, from a  
21 file on the hard disk drive (e.g., Windows Media Audio (WMA) format),  
22 or from online streaming sources.
- 23 3. Digital audio/video played from a DVD disc in the portable media drive  
24 106, from a file on the hard disk drive (e.g., Active Streaming Format),  
25 or from online streaming sources.



Fig. 2 shows functional components of the gaming system 100 in more detail. The game console 102 has a central processing unit (CPU) 200 and a memory controller 202 that facilitates processor access to various types of memory, including a flash ROM (Read Only Memory) 204, a RAM (Random Access Memory) 206, a hard disk drive 208, and the portable media drive 106. The CPU 200 is equipped with a level 1 cache 210 and a level 2 cache 212 to temporarily store data and hence reduce the number of memory access cycles, thereby improving processing speed and throughput.

The CPU 200, memory controller 202, and various memory devices are interconnected via one or more buses, including serial and parallel buses, a memory bus, a peripheral bus, and a processor or local bus using any of a variety of bus architectures. By way of example, such architectures can include an Industry Standard Architecture (ISA) bus, a Micro Channel Architecture (MCA) bus, an Enhanced ISA (EISA) bus, a Video Electronics Standards Association (VESA) local bus, and a Peripheral Component Interconnects (PCI) bus also known as a Mezzanine bus.

As one suitable implementation, the CPU 200, memory controller 202, ROM 204, and RAM 206 are integrated onto a common module 214. In this implementation, ROM 204 is configured as a flash ROM that is connected to the memory controller 202 via a PCI (Peripheral Component Interconnect) bus and a ROM bus (neither of which are shown). RAM 206 is configured as multiple DDR SDRAM (Double Data Rate Synchronous Dynamic RAM) that are independently controlled by the memory controller 202 via separate buses (not shown). The hard

1 disk drive 208 and portable media drive 106 are connected to the memory  
2 controller via the PCI bus and an ATA (AT Attachment) bus 216.

3 A 3D graphics processing unit 220 and a video encoder 222 form a video  
4 processing pipeline for high speed and high resolution graphics processing. Data  
5 is carried from the graphics processing unit 220 to the video encoder 222 via a  
6 digital video bus (not shown). An audio processing unit 224 and an audio codec  
7 (coder/decoder) 226 form a corresponding audio processing pipeline with high  
8 fidelity and stereo processing. Audio data is carried between the audio processing  
9 unit 224 and the audio codec 226 via a communication link (not shown). The  
10 video and audio processing pipelines output data to an A/V (audio/video) port 228  
11 for transmission to the television or other display. In the illustrated  
12 implementation, the video and audio processing components 220-228 are mounted  
13 on the module 214.

14 Also implemented on the module 214 are a USB host controller 230 and a  
15 network interface 232. The USB host controller 230 is coupled to the CPU 200  
16 and the memory controller 202 via a bus (e.g., PCI bus) and serves as host for the  
17 peripheral controllers 104(1)-104(4). The network interface 232 provides access  
18 to a network (e.g., Internet, home network, etc.) and may be any of a wide variety  
19 of various wire or wireless interface components including an Ethernet card, a  
20 modem, a Bluetooth module, a cable modem, and the like.

21 The game console 102 has two dual controller support subassemblies  
22 240(1) and 240(2), with each subassembly supporting two game controllers  
23 104(1)-104(4). A front panel I/O subassembly 242 supports the functionality of  
24 the power button 112 and the eject button 114, as well as any LEDs (light emitting  
25 diodes) or other indicators exposed on the outer surface of the game console. The

1 subassemblies 240(1), 240(2), and 242 are coupled to the module 214 via one or  
2 more cable assemblies 244.

3 Eight memory units 140(1)-140(8) are illustrated as being connectable to  
4 the four controllers 104(1)-104(4), i.e., two memory units for each controller.  
5 Each memory unit 140 offers additional storage on which games, game  
6 parameters, and other data may be stored. When inserted into a controller, the  
7 memory unit 140 can be accessed by the memory controller 202.

8 A system power supply module 250 provides power to the components of  
9 the gaming system 100. A fan 252 cools the circuitry within the game console  
10 102.

11 The game console 102 implements a uniform media portal model that  
12 provides a consistent user interface and navigation hierarchy to move users  
13 through various entertainment areas. The portal model offers a convenient way to  
14 access content from multiple different media types—game data, audio data, and  
15 video data—regardless of the media type inserted into the portable media drive  
16 106.

17 To implement the uniform media portal model, a console user interface (UI)  
18 application 260 is stored on the hard disk drive 208. When the game console is  
19 powered on, various portions of the console application 260 are loaded into RAM  
20 206 and/or caches 210, 212 and executed on the CPU 200. The console  
21 application 260 presents a graphical user interface that provides a consistent user  
22 experience when navigating to different media types available on the game  
23 console. The UI application and exemplary screen displays it presents are  
24 described below in more detail beneath the headings “Uniform Media Portal” and  
25 “Operation”.

1 The gaming system 100 may be operated as a standalone system by simply  
2 connecting the system to a television or other display. In this standalone mode,  
3 the gaming system 100 allows one or more players to play games, watch movies,  
4 or listen to music. However, with the integration of broadband connectivity made  
5 available through the network interface 232, the gaming system 100 may further  
6 be operated as a participant in a larger network gaming community. This network  
7 gaming environment is described next.

### 8 9 **Network Gaming**

10 Fig. 3 shows an exemplary network gaming environment 300 that  
11 interconnects multiple gaming systems 100(1), ..., 100(g) via a network 302. The  
12 network 302 represents any of a wide variety of data communications networks. It  
13 may include public portions (e.g., the Internet) as well as private portions (e.g., a  
14 residential Local Area Network (LAN)), as well as combinations of public and  
15 private portions. Network 302 may be implemented using any one or more of a  
16 wide variety of conventional communications media including both wired and  
17 wireless media. Any of a wide variety of communications protocols can be used  
18 to communicate data via network 302, including both public and proprietary  
19 protocols. Examples of such protocols include TCP/IP, IPX/SPX, NetBEUI, etc.

20 In addition to gaming systems 100, one or more online services 304(1), ...,  
21 304(s) may be accessible via the network 302 to provide various services for the  
22 participants, such as hosting online games, serving downloadable music or video  
23 files, hosting gaming competitions, serving streaming audio/video files, and the  
24 like. The network gaming environment 300 may further involve a key distribution  
25 center 306 that plays a role in authenticating individual players and/or gaming

1 systems 100 to one another as well as online services 304. The distribution center  
2 306 distributes keys and service tickets to valid participants that may then be used  
3 to form games amongst multiple players or to purchase services from the online  
4 services 304.

5 The network gaming environment 300 introduces another memory source  
6 available to individual gaming systems 100—online storage. In addition to the  
7 portable storage medium 108, the hard disk drive 208, and the memory unit(s)  
8 140, the gaming system 100(1) can also access data files available at remote  
9 storage locations via the network 302, as exemplified by remote storage 308 at  
10 online service 304(s).

11 The uniform media portal model accommodates the network gaming  
12 environment. As an example, when a user purchases a game, the model can  
13 provide the user with navigation points for downloading upgrades for that game  
14 and viewing high scores online specific to the game title.

### 15 **Uniform Media Portal**

16  
17 Figs. 4 shows the uniform media portal model 400. It provides main menu  
18 402 that acts as a common interface for multiple media types, including game  
19 media, movie media, and music media. The main menu 402 presents the user with  
20 a set of navigation choices that accurately describe what they would like to  
21 interact with on their console. This top-level menu is a simple representation of  
22 the three primary entertainment areas available on the console, thus presenting the  
23 following choices:  
24  
25

- 1       • Games: This entertainment area pertains to a user's game experience  
2       and gaming media.
- 3       • Music: This entertainment area is dedicated to the music context and  
4       audio media.
- 5       • Movies: This entertainment area relates to a user's movie experience  
6       and video media.

7

8       The model's navigation hierarchy follows the media theme. Beneath the  
9       main menu 402 are collections of titles that pertain to their particular media types  
10      currently available to the user. In this example, a user can navigate from the main  
11      menu 402 to a games collection 404 that lists currently available game titles.  
12      Navigation may also be made to a music collection 406 that groups available  
13      music titles and a movie collection 408 that groups available movie titles. By  
14      constructing the hierarchy in terms of media type, the user is intuitively presented  
15      with titles within any given entertainment area. The titles within the various areas  
16      may be stored in any one of many storage locations, but such detail is not  
17      immediately revealed. Thus, the uniform media portal model 400 offers a  
18      coherent way to access multiple media types regardless of the media type inserted  
19      into the gaming system's portable media drive.

20      Area specific features, such as high scores on a game or how to play a  
21      movie, are left for lower levels of the model 400. Thus, beneath each collection is  
22      the specific play area that pertains to the particular media experience. A games  
23      play area 410 is navigated through the games collection 404, a music play area  
24      412 is accessed through the music collection 406, and a movies play area 414 is  
25      navigated through the movie collection 408. This organization of the model

1 allows users to select the context of the media type. This model thus provides a  
2 high-level “filter” on the kinds of media available on the console, and what  
3 operations may be performed with respect to the media.

4 The model 400 also accommodates system areas, including a memory area  
5 416 and a settings area 418. The memory area 416 allows users to view memory  
6 contents and manage the memory devices in the console. The settings area 418  
7 allows users to preview currently set options, as well as adjust the settings as  
8 desired.

### 9 10 **Operation**

11 The console application 260, which implements the uniform media portal  
12 model 400, is stored in the hard disk drive 208 of the console 102. The console  
13 application 260 is loaded each time the console is powered on. When power is  
14 initially applied and before presenting the main menu or loading a title, the  
15 console application 260 runs through a startup cycle that performs a number of  
16 checks occur in sequence, including a system level check and a media level check.

17 Fig. 5 illustrates a system level evaluation process 500 that is performed  
18 every time the console is powered on. The process 500 is implemented in  
19 software and hence the operations shown as blocks represent computer-executable  
20 instructions that are executed by the CPU 200.

21 At block 502, a first system level check is made to determine whether the  
22 initial boot code stored in ROM 204 recognizes the hard disk drive 208. If not  
23 (i.e., the “No” branch from block 502), the user is notified that the console is  
24 unusable via a static graphic image, audible noise, or some other type of warning  
25

1 (block 504). At this point, there are no further messages and the console 102 will  
2 not continue to boot.

3 If the hard disk is recognized (i.e., the “Yes” branch from block 502), a  
4 second system level check evaluates whether the language on the console has been  
5 set (block 506). If this returns false (i.e., the “No” branch from block 506), it is  
6 either the first time the user has powered up the console, or the console has been  
7 serviced, refurbished, or possibly even rented and the language value reset. In this  
8 situation, the console application 260 presents a language selection screen for the  
9 user to select an appropriate language from among those languages available on  
10 the console (block 508). Selection is made by actuating a button or mechanism on  
11 the controller 104, such as the “A” button.

12 Assuming the language is set (i.e., the “Yes” branch from block 506), the  
13 next system level check determines whether the clock is set (block 510). A false  
14 return (i.e., the “No” branch from block 510) represents a situation where the user  
15 power up the console for the very first time, or a situation where the system  
16 battery has died. In such situations, the application 260 presents an initial clock  
17 setup screen based on the selected language (block 512). The clock setup screen  
18 allows the user to navigate between and adjust the different time and date values  
19 on the console. These choices are committed by actuating a controller mechanism,  
20 such as the “A” button.

21 If the clock is set (i.e., the “Yes” branch from block 510), the next system  
22 level check is to evaluate whether a direct entry point into the console is desired  
23 (block 514). This situation may arise, for example, if there is insufficient space to  
24 save a game. If this returns true, the console ignores what is currently in the  
25 portable media drive 106 and boots directly to the console UI application 260 with



1 some set parameter values (clear how much space, etc) (block 516). Upon  
2 completion of the system level checks, the console 102 continues powering up and  
3 performs another set of checks based on the media in the portable media drive  
4 106.

5 Fig. 6 illustrates a media level evaluation process 600 that is performed  
6 following the system level checks. The process 600 is implemented in software  
7 and hence the operations shown as blocks represent computer-executable  
8 instructions that are executed by the CPU 200.

9 At block 602, a first media level check is conducted to discern whether a  
10 game disc in the portable media drive 106. If a game disc is inserted (i.e., the  
11 “Yes” branch from block 602), a security and certification process is performed to  
12 ensure that the title is a valid game (block 604). As part of this process, the  
13 console determines whether the game disc has a later version of the console UI  
14 application 260. If a newer version exists, a progress indicator graphic is  
15 presented to inform the user that a newer version of the UI application 260 is  
16 being copied to the hard disk drive 208. At block 606, the game disc is  
17 immediately loaded and the title is given full control of the console 102. In this  
18 manner, the title developer is allowed to dictate what user experience should occur  
19 next, such as beginning the game immediately, or presenting a UI screen that  
20 exhibits the game features.

21 Conversely, if a game disc is not present in the portable media drive (i.e.,  
22 the “No” branch from block 602), a next media level check evaluates whether a  
23 movie disc is inserted into the portable media drive 106 (block 608). If this test  
24 returns true (i.e., the “Yes” branch from block 608), the console UI application  
25

1 260 is loaded and the user is immediately navigated to the movie playback area  
2 414 (block 610). The movie is then played full screen (block 612).

3 In another implementation, the game console may be configured to require  
4 a playback dongle to allow video playback. In this implementation, a secondary  
5 check can be made to ensure that the playback dongle is currently plugged into a  
6 controller port. If the dongle is plugged in, the check is successful and the movie  
7 begins to play full screen. If the dongle is not plugged in, the UI application is  
8 loaded and the user is presented with a status message notifying them that they  
9 need the dongle to enable playback of the movie.

10 If neither a game disc nor a movie disc is in the portable media drive (i.e.,  
11 the "No" branch from block 608), the next media level check is to ascertain  
12 whether an audio disc is inserted into the portable media drive (block 614). If so  
13 (i.e., the "Yes" branch from block 614), the console UI application 260 is loaded  
14 and the user is immediately navigated to the music playback area 412 (block 616).  
15 The music disc is then played (block 618).

16 If an audio disc is not present (i.e., the "No" branch from block 614), the  
17 next media level check is to determine whether an unrecognized disc is in the  
18 drive 106 (block 620). If so (i.e., the "Yes" branch from block 620), the console  
19 UI application 260 is loaded and the user is presented with a status message  
20 notifying them that an invalid disc is in the console drive (block 622). This  
21 message can be dismissed, and the user is presented with the main menu 402.

22 If there is no media in the portable media drive 106 (i.e., the "No" branch  
23 from block 620), the console UI application 260 is loaded and the main menu is  
24 presented (block 624).  
25

Fig. 7 shows an exemplary graphical user interface 700 that can be presented as the main menu 402 of the uniform media portal model 400. The main menu UI 700 is generated by the console UI application 260 and depicted on the television or other display. The main menu UI 700 contains the five menu elements: a games element 702, a music element 704, a movies element 706, a memory element 708, and a setting element 710. These elements provide the navigation entry points for the five level-one areas of the uniform media portal model 400, namely, the games collection 404, the music collection 406, the movie collection 408, the memory 416, and the settings 418. Environmental background audio may be played when entering the main menu to further enhance the user environment.

The focus on the main menu UI 700 is initially placed on the games element 702, but other default positions may be alternatively employed. Any of the four controllers 104(1)-104(4) may be used to navigate the console user interface. The main menu is navigated from left to right with any of the connected controller joysticks. "D-pad" and left analog joystick actions are treated the same. The console UI application 260 recognizes all button presses and joystick movements from every controller 104, so moves from multiple joysticks simultaneously may result in a "tug-of-war" navigation. In one implementation, the navigation does not wrap once the user has reached the far left or right extent of the main menu UI 700, thus attempting to move right once the user has reached the settings element 710 or to move left once the user has reached the games element 702 will have no effect.

A select element 712 allows the user to select the focused element from among the five main menu elements 702-710. The "A" button on the controller is

1 used to control the select element 712, and hence the graphical select element 712  
2 illustrates an “a” within the element. Upon selection, the console UI application  
3 navigates to the selected area.

4 The game console 102 is equipped with a screensaver that dims the screen  
5 after ten minutes of inactivity. Any input from the four controller ports will  
6 disable the screensaver and return the user to the current interface. The  
7 screensaver is disabled in the movie player and music player screens during  
8 playback.

9 Fig. 8 illustrates the main menu navigation process 800 in more detail. The  
10 process 800 is implemented in software as computer-executable instructions that  
11 are executed by the CPU 200 to perform the operations illustrated as blocks. The  
12 process generally discerns which main menu element is selected and navigates to  
13 the selected area.

14 At block 802, the console application 260 determines whether the games  
15 element 702 is selected. If so (i.e., the “Yes” branch from block 802), the console  
16 application 260 navigates to the games collection 404 and presents a games  
17 collection menu (block 804).

18 Fig. 9 illustrates an exemplary games collection menu 900 that is presented  
19 upon selection of the games element 702 in the main menu UI 700. The games  
20 collection is the area where the user can select from available game titles they  
21 have previously played on their console. The games collection menu 900 includes  
22 a list 902 of the available game titles in the games area. A game is a title that has  
23 been purchased, borrowed, or rented by the user and played on their console at  
24 least one time. In Fig. 9, the games titles are shown in horizontal tiles or panes. It  
25

1 is noted that other graphical themes may be alternatively used to represent  
2 available games, such as a bookshelf, a toy box, or the like.

3 The games collection menu 900 also includes an orb 904 depicting an  
4 image of the currently selected game title and a metatext panel 906 with small  
5 snippets of information about the current game title. In the illustrated example,  
6 the game "Starcraft" is highlighted, resulting in an image of a character from the  
7 game "Starcraft" being depicted in orb 904 and information pertaining to this  
8 game being presented in panel 906. The game developer is given control of the  
9 contents of the orb 904 and metatext panel 906, so the information will vary from  
10 one game title to another.

11 A piece of descriptive text 908 (i.e., "n games") is positioned beside the  
12 main legend "Games" to indicate the number of titles in the game collection. The  
13 list 902 displays a limited number of game titles (e.g., eight titles). When a user  
14 first enters the games collection after purchasing their console, there will be zero  
15 titles in the game collection. To represent this, the descriptive text 908 states "0  
16 games" and the metatext panel 906 offers a short statement telling the user that  
17 future games played on the console will appear in this area. As the user plays  
18 games, they are added to the list 902. When the descriptive text 908 indicates that  
19 there are more games than shown on list 902 (e.g.,  $n > 8$ ), up/down scroll arrows  
20 are added to the list 902 to indicate that there are additional titles not currently  
21 shown on the list.

22 As noted above, the game developer provides the games collection  
23 metadata used to fill the orb 904 and panel 906. When the user plays a game title  
24 on the console for the first time, a number of metadata elements are copied into the  
25

1 title's persistent data area on the hard disk drive 208. Exemplary metadata  
2 elements for this area include:

- 3  
4 • A 256x256 pixel Direct3D texture image that accurately represents the  
5 game title to be displayed in both the games collection and the memory  
6 area.
- 7 • A text file that contains a series of heading/body pairs that will slowly  
8 scroll in a loop within the metatext panel 906. The format for this file  
9 follows:

10  
11 **Game Description File:**

12 Filename: main.xbx

13 Standard INI file format in Unicode

14 Sections name a language in English

15 Defines one or more heading/body pairs in each  
16 language

17 [Language 1]

18 Title1 = Title of blurb 1

19 Body1 = Short snippet about blurb 1

20 Title2 = Title of blurb 2

21 Body2 = Short snippet about blurb 2

22 [Language 2]

23 Title1 = Localized title of blurb 1

24 Body1 = Localized short snippet about blurb 1

25 If the [default] tag is used in the language field, this  
value is used with the current language set in the  
console if not found in main.xbx.

26 The user can move among game titles in list 902 by using the up and down  
27 directions of the joystick, or some other pre-defined control mechanism. The list

902 may be configured to wrap or not wrap when the user reaches the top or the bottom of the list. A select element 910 allows the user to select the highlighted title from list 902 using the “A” button on the controller. Selection of a game title navigates the user to a games option menu. A back element 912 facilitates navigation back to the main menu UI 700. The back element 912 is chosen by pressing the “B” button on the controller, as visually aided by the letter “b” in the element 912.

Fig. 10 illustrates an exemplary games option menu 1000 that is presented upon selection of a game title in the games collection menu 900. The game options menu 1000 provides users with options that are currently available for the selected title. The menu includes a list 1002 of the available options for the selected title, an orb 1004 containing the image of the currently selected game image, and a metatext panel 1006 for small snippets of information about the currently selected option. A select element 1008 and a back element 1010 are also provided to facilitate navigation from the game options menu 1000.

In the illustrated example, the listed options are “High Scores”, “New Game”, “Saved Game”, “Tips”, and “Updates”. These options are presented for every title that has been played on the console. The user can move among the available game options by using, for example, the up and down directions of the joystick to traverse the list 1002. Pressing the “B” button in the game options navigates the user back to the games collection menu 900 of Fig. 9. Pressing the “A” button in the game options navigates the user into the appropriate display for the currently selected option.

Fig. 11 shows an exemplary high scores screen 1100 that is presented upon selection of the “High Scores” option in the games option menu 1000 of Fig. 10.

1 The high scores screen 1100 includes a list 1102 of the top scores and an orb 1104  
2 depicting the same game image. A select element 1106 and a back element 1108  
3 facilitate navigation from the high score screen 1100.

4 The top scores depicted in list 1102 may represent the top local users for a  
5 specific game title, or rankings from top players in the world (if such statistics are  
6 available from an online source). The list 1102 may also be scrollable if more than  
7 ten scores are available. For instance, the game console may store the top 100  
8 scores for each title, and present ten of the scores at a time in the scrollable list.

9 Notice that the various screens in the games collection area carry the same  
10 graphical themes. Lists 902, 1002, and 1102 are visually similar, and orbs 904,  
11 1004, and 1104 present the same gaming image. The common presentation theme  
12 aids the user during navigation, enhancing the user experience.

13 With reference again to the games option menu 1000 in Fig. 10, the “New  
14 Game” option aids the user in starting a new game in the game console. When the  
15 new game option is selected, the metatext panel 1006 notifies the user that this  
16 option is specifically for starting directly into a new game. The console UI  
17 application 260 presents a message window instructing the user to place the new  
18 game disc in the portable media drive 106. At the same time, the tray of the  
19 portable media drive 106 is automatically opened to receive the new game disc.  
20 Upon insertion, the title is automatically launched into a new game. If the user  
21 accidentally inserts the incorrect disc, the title of the disc loads normally and the  
22 instruction to immediately start a new game is ignored.

23 When the “Saved Game” option is highlighted, the metatext panel 1006  
24 notifies the user that this option is specifically for launching directly into a  
25 previously saved game, or performing other saved game functions. Once the



“Saved Game” option is selected, the user is presented with a more robust list of all saved games for the selected title from every memory unit connected to the game console 102 (e.g., hard disk drive and memory unit(s)). The user may perform a single select or multi-select on the saved games. Selection of a saved game brings up a menu allowing the user to “play”, “copy”, or “delete” the saved game. If the option to “play” a saved game is chosen, the user is presented with a message window that notifies the user to place the appropriate game disc in the portable media drive 106, and the tray is opened automatically. Upon insertion, the title automatically launches into the previously selected saved game. If the user accidentally inserts the incorrect disc, the title loads normally and the instruction to immediately start a previously saved game is ignored.

The “Tips” option slowly exposes cheats and tips that users can decide to enable during game play to assist them in playing the game or possibly prolong the playability of a game title. These tips may reside on the game disc, along with rules for exposing them over time, or at a remote site accessible via the network. Whether tips are provided, and the extent to which they are provided, are left to the discretion of the game developer.

The “Updates” option allows users to download the latest versions, statistics, patches, track packs, etc. with a single controller button. Another possible option not shown in Fig. 10 is a “Remove” option that provides users a way to completely remove all data for a particular game title from the hard disk drive 208. A warning message window with confirmation from the user is presented to notify the user that all associated data and saved games will be completely removed from the game console (but not from any memory units in the game controllers). Upon confirmation of the action, all of the game data is

removed from the hard disk, and the user is returned to the game collection menu 900 in Fig. 9 with the title removed from the games list 902.

The gaming system further supports other options that game developers may wish to include. A game title can extend the available options (e.g., up to 30 additional options) by providing a MENU.XBX file in the persistent data area on the hard disk drive 208. The MENU.XBX file contains the following information:

### Menu description file

Filename: menu.xbx

Standard INI file format in Unicode

Sections name a language in English

Defines one or more sets of menu elements in each language

[Language 1]

Title1 = Menu name

Body1 = Metatext information

Table1 = filename

News1 = filename

Image1 = filename

Only one of Table1, News1, or Image1 may be specified

If the [default] tag is used in the language field, this value is used with the current language set in the console if not found in menu.xbx

### Table File Format

Filename: defined in menu.xbx

Unicode text file

01 Player1	200,000
02 Player2	150,000

Each row is displayed on one line

1                    Tabs separate columns, and only two columns are  
2                    allowed.

3                    The first column is left justified, and the second column  
4                    is right justified.

### 5                    **News File Format**

6                    Filename: defined in menu.xbx  
7                    Unicode text file

8                    Title1 = Title of blurb 1  
9                    Body1 = Blurb 1

10                   Title2 = Title of blurb 2  
11                   Body2 = Blurb 2

12                   News items are displayed one after the other, and the  
13                   user can scroll the total height if the length exceeds  
14                   the window height.

### 15                   **Image File Format**

16                   Filename: defined in menu.xbx  
17                   Direct3D image file

18                   Image size: The author may use any arbitrary image  
19                   size, with 512x512 recommended

20                   The game title defines an image file with the appropriate  
21                   alpha channels that will display fully stretched in the  
22                   viewing area of the game options. The game may  
23                   choose to place a high scores table, screen shots from  
24                   the game, or whatever the title finds appropriate to  
25                   render under this option.

26                   With reference again to the main menu navigation process 800 of Fig. 8,  
27                   suppose that the user does not select the games element 702 in the main menu UI  
28                   700 (i.e., the “No” branch from block 802). At block 806, the console UI  
29                   application 260 ascertains whether the music element 704 is selected. If it is (i.e.,

1 the “Yes” branch from block 806), the console UI application 260 navigates to the  
2 music collection 406 and presents a music collection menu (block 808).

3 Fig. 12 illustrates an exemplary music collection menu 1200 that is  
4 presented upon selection of the music element 704 in the main menu UI 700 (Fig.  
5 7). The music collection is the area where the user can select from available audio  
6 discs in the portable media drive 106 as well as soundtracks they have previously  
7 created and stored on the hard disk drive 208. The music collection menu 1200  
8 includes a list 1202 of the available audio discs in the portable media drive (if any)  
9 and soundtrack files on the hard disk drive. An example of a suitable audio disc is  
10 a Redbook audio CD (compact disc). An example of a suitable soundtrack file is  
11 one or more WMA files.

12 An orb 1204 contains a graphic of the currently selected audio item and a  
13 metatext panel 1206 posts information about the current audio element. As the  
14 user navigates over the list 1202 of the available audio discs and soundtracks,  
15 corresponding summary information is posted in the metadata panel 1206. The  
16 following information is displayed for the currently selected audio CD or  
17 soundtrack:

- 18
- 19 • Name of the audio element as it appears in the list
- 20 • Total number of tracks
- 21 • Total playing time for the audio element in minutes and seconds
- 22

23 In this example, the audio CD is highlighted in list 1202 and hence a CD  
24 image is presented in orb 1204. As indicated by the metatext panel 1206, the  
25 audio CD is the 14-track album “Earthling” by David Bowie. When network

1 access is available, artist and other information can be pulled from online services  
2 over the Internet at any time.

3 Descriptive text 1208 (i.e., “n items”) is positioned beside the main legend  
4 “Music Collection” to indicate the number of titles in the music collection. The  
5 list 1202 displays a limited number of music titles (e.g., eight titles). When a user  
6 first enters the music collection after purchasing their console, there will be zero  
7 titles in the music collection (i.e., “0 items”). The music collection menu 1200 is  
8 bypassed and the user is navigated to the music player screen (shown and  
9 described below with respect to Fig. 13). The title of the music player screen is  
10 “no audio CD” and all of the playback buttons in the area are disabled. The user  
11 may only navigate back to the main menu 700 (Fig. 7).

12 If the user only has a single audio disc in the portable media drive, or a  
13 single soundtrack in the music collection, the user is automatically navigated past  
14 the music collection menu 1200 when coming from the main menu and is taken  
15 directly to the music player screen. As the user creates multiple soundtracks and  
16 stores them in the hard disk drive, the music collection menu 1200 is no longer  
17 bypassed, but instead presents the available titles in the list 1202. When the  
18 descriptive text 1208 indicates that there are more music titles than shown on list  
19 1202 (e.g.,  $n > 8$ ), up/down scroll arrows are added to the list 1202 to represent  
20 that more titles are available.

21 The user can move among music titles in list 1202 by using the up and  
22 down directions of the joystick, or some other pre-defined control mechanism.  
23 The list 1202 may be configured to wrap or not wrap when the user reaches the top  
24 or the bottom of the list. A select element 1210 enables user selection of the  
25 highlighted title from list 1202 using the “A” button on the controller. Selection

1 of a game title navigates the user to the music player menu. A back element 1212  
2 facilitates navigation back to the main menu UI 700 by pressing the “B” button on  
3 the controller.

4 Fig. 13 illustrates an exemplary music player 1300 that is presented upon  
5 selection of a music title from menu 1200 (Fig. 12) or, where no music titles are  
6 listed, upon loading a music disc. The music player allows the user to play back  
7 the current audio disc in the portable media drive 106 or previously created  
8 soundtracks. Upon navigating into the music player 1300, any environmental  
9 background audio presented in earlier screens is stopped to give full attention to  
10 the media. Similarly, if the user navigates away from the music player while music  
11 is playing, the game console may be configured to stop the music playback  
12 automatically and resume the environmental background audio.

13 The music player 1300 includes a track list 1302 of the available audio  
14 tracks and corresponding track lengths, an orb 1304 that contains a radial spectrum  
15 analyzer (or other music related visual), and a status element 1306 that displays  
16 the current playback status and timeline of the current track. During audio  
17 playback, the current track being played within the track list 1302 is highlighted.  
18 The status element 1306 renders the following information for the user:

- 19
- 20 • Current time within the current track
- 21 • Visual progress bar for the current track
- 22 • Simple playback icons to denote playback status (e.g., play, pause, stop,  
23 repeat, random)
- 24
- 25

1 The user can move among tracks in list 1302 by using the up and down  
2 directions of the joystick, or some other pre-defined control mechanism. A select  
3 element 1306 enables user selection of the highlighted track and back element  
4 1308 facilitates navigation back to the music collection menu 1200.

5 A transport control panel 1310 is displayed along the bottom of the music  
6 player for playback control. The soundtrack name or the text "Audio CD" appears  
7 in the title area 1312 of the music player depending on the current playback media.  
8 When the user first navigates into the music player from the main menu or the  
9 music collection, the play button is in focus by default.

10 The transport control panel 1310 provides the following buttons for the  
11 user:

- 12
- 13 • Play – start or resume playing. The play button toggles to the "pause"  
14 button during playback.
- 15 • Stop – stops playing the current track and the playback position is reset  
16 to the beginning of the current track.
- 17 • Next Track – skip to the beginning of the next track. If random is  
18 enabled, skip to the next random track. Holding down the next track  
19 button scans the current track in the forward direction.
- 20 • Previous Track – skip to the beginning of the current track, and then to  
21 the previous track if the previous track button is hit again. If random is  
22 enabled, skip to the previous track in the random selection. Holding  
23 down the previous track button scans the current track in the reverse  
24 direction.
- 25

- 1       • Add to Soundtrack – navigates the user into the soundtrack creation tool  
2       with the current audio disc or soundtrack as the source. Any music  
3       playback stops when this button is pressed.
- 4       • More – provides users with audio playback functionality that is beyond  
5       the basic scope of typical playback. The “more” button behaves as a  
6       toggle button, and when depressed, the following buttons are exposed in  
7       the music player:
  - 8           • Random – Toggle button that enables the random playback of  
9           tracks.
  - 10          • Repeat – Toggle button that enables the repeated playback of the  
11          track list. If random is also enabled, this continues to playback  
12          the random selection of tracks
  - 13          • Move up – Moves the track of a soundtrack that is currently  
14          selected up one position in the total list of tracks.
  - 15          • Move down – Moves the track of a soundtrack that is currently  
16          selected down one position in the total list of tracks.
  - 17          • Delete – Removes the currently selected track from the  
18          soundtrack.

19  
20       Buttons on the game controller 104 may be mapped to the transport control  
21       buttons. For example, a white button on the controller might be mapped to the  
22       play/pause toggle button, the black controller button might be mapped to the stop  
23       button, the left trigger might be mapped to the previous track button, and the Right  
24       trigger might be mapped to the next track.



1 As noted above, users can create their own soundtracks from legitimate  
2 music sources. Soundtrack creation is a two-step process. The first step is to  
3 create a soundtrack or choose an existing one. The second step is to select the  
4 audio tracks to be added to the soundtrack.

5 Fig. 14 illustrates an exemplary soundtrack selection screen 1400. It  
6 provides users with a list 1402 of all soundtracks available to the gaming system.  
7 Such soundtracks may be stored on the hard disk drive 208, a portable disc  
8 medium 108 in drive 106, a memory unit 140, or at remote storage 308 at an  
9 online source 304. If the user has created at least one soundtrack, the list 1402  
10 depicts one or more placards of available soundtracks. A user entered name, or a  
11 default name "soundtrack 1", "soundtrack 2", etc., is shown on the placards. A  
12 "New Soundtrack" button 1404 is positioned beside the list to enable the user to  
13 create a new soundtrack. Upon selection of a soundtrack in the list 1402 or the  
14 "New Soundtrack" button 1404, the user is navigated to the track selection screen  
15 described below with respect to Fig. 15.

16 If the user has not yet created a soundtrack, the list of available soundtracks  
17 contains a single button entitled "New Soundtrack". Upon choosing the "New  
18 Soundtrack" button, the user is presented with an area for text entry and a virtual  
19 keyboard for typing a new name for the soundtrack. By default, the name given to  
20 the soundtrack will be "Soundtrack 1", but any keyboard input from the user will  
21 clear this default title with the entered name. Upon completion, the user is  
22 navigated to the track selection screen described next.

23 Fig. 15 illustrates an exemplary audio track selection screen 1500. It  
24 contains a list 1502 of available tracks (e.g., from an audio disc, or online source),  
25 and a corresponding list 1504 of tracks that are already in the soundtrack. The

1 users can now choose a single track, or multiple tracks in the same selection  
2 model. Upon confirmation with the select element 1506, the selected tracks are  
3 transferred from the source to the soundtrack in a quick, modal operation. The  
4 user may cancel this operation once it has started, but all transfers for that  
5 selection will be lost. If a power off occurs in this scenario, it is treated as a cancel  
6 operation and all tracks are lost for that operation.

7 The screen 1500 further depicts a status area 1508 that lets the user know  
8 the progress of the total operation. Upon completion of the operation, the user  
9 navigates back to the music player 1300 via back element 1510.

10 WMA files for soundtracks are stored in a flat directory on the hard disk  
11 drive 208. This directory also contains a text data file that maintains a reference of  
12 all WMA files, as well as the soundtracks to which each WMA file belongs.  
13 Because the game console manages the soundtrack directory, it is possible to keep  
14 this data file up to date. An API (application program interface) may be used to  
15 allow a game to query such information as the list of available soundtracks, first  
16 file of a specific soundtrack, last file of a specific soundtrack, and next file in a  
17 specific soundtrack.

18 With reference again to the main menu navigation process 800 of Fig. 8,  
19 suppose that the user selects neither the games element 702 nor the music element  
20 704 in the main menu UI 700 (i.e., the “No” branch from block 806). At block  
21 810, the console UI application 260 evaluates whether the movies element 706 is  
22 selected. If this element is selected (i.e., the “Yes” branch from block 810), the  
23 console UI application 260 navigates to the movies collection 408 and presents a  
24 movie player (block 812). Any environmental background audio is stopped to  
25 give full attention to the media.

1 The movie player is where the user plays back a movie, which may be  
2 stored on a video disc in the portable media drive 106, or as a file on the hard disk  
3 drive 208, or streamed from an online service 304. The movie player is a full  
4 screen playback area. A screen may be presented to notify the user of the  
5 following information.

- 6
- 7 • Current time within the movie
- 8 • Current chapter a DVD disc
- 9 • Playback icons to denote playback status (e.g., play, pause, stop, angle,  
10 repeat, random)
- 11

12 In addition to navigation from the main menu, placing a movie disc in the  
13 portable media drive 106 causes direct navigation to the movie player. As long as  
14 a movie disc resides in the drive, the full screen playback menu is maintained. If  
15 the user removes the disc during playback, or after the movie is over, the user is  
16 returned to the main menu 700 (Fig. 7).

17 The game console 102 may further be configured to implement certain  
18 movie playback rules. For example, one rule may be to stop the movie if it is  
19 paused for more than five minutes. Another rule may be that pressing stop during  
20 movie playback will cause the current position of the playback to be stored. If the  
21 user presses stop again, the position will be erased from memory. If the play  
22 button is pressed after a position is stored, the console will automatically resume  
23 playback from the stored position. The position persists if the disc is removed  
24 from the drive, but will be erased if a different disc is inserted.

25

1 Still another rule might be that pressing the scan button one or more times  
2 while the movie is playing will speed up the video by some predefined measures  
3 (e.g., one time results in a 2x speed increase, two times causes a 4x speed increase,  
4 three times causes an 8x speed increase, and so on). Pressing scan in the opposite  
5 direction will proportionally slow the video playback.

6 Another rule may be that pressing the scan button one or more times while  
7 the movie is paused will play the movie in a slower than normal speed by the  
8 predetermined measures (e.g., one time results in a 1/2x speed reduction, two  
9 times causes a 1/4x speed reduction, and so forth). Pressing scan in the opposite  
10 direction will proportionally speed the video playback until it returns to a paused  
11 state.

12 Pressing the play button when the video is paused or scanning will resume  
13 normal playback. When the video is playing, pressing the frame advance button  
14 will pause playback. Pressing this button a second time will advance the video  
15 one frame in the appropriate direction.

16 Buttons on the game controller 104 may be mapped to movie player  
17 functions. For example, a white button on the controller might be mapped to the  
18 play/pause toggle button, the black controller button might be mapped to the stop  
19 button, the left trigger might be mapped to the previous chapter, the Right trigger  
20 might be mapped to the next chapter, and the "A" button might be mapped to the  
21 on-screen status screen. If a dongle is plugged into the game console, a remote  
22 may be used to control the movie player.

23 With reference again to the main menu navigation process 800 of Fig. 8,  
24 suppose that the user fails to select the game, music, or movie elements in the  
25 main menu UI 700 (i.e., the "No" branch from block 810). At block 814, the

1 console UI application 260 decides whether the memory element 708 is selected.  
2 If so (i.e., the “Yes” branch from block 814), the console UI application 260  
3 navigates to the memory area 416 and presents a memory collection menu (block  
4 816).

5 Fig. 16 illustrates an exemplary memory collection menu 1600 that is  
6 presented in response to selection of the memory element 708 in main menu 700.  
7 The memory collection area identifies the memory devices that are currently  
8 accessible by the game console and able to store data. The memory collection  
9 area further presents properties of the various memory devices and facilitates  
10 memory management of the devices.

11 The memory collection menu 1600 includes a central orb 1602 with an  
12 image of the game console. Controller pods 1604(1)-1604(4) surround the central  
13 orb 1602 to demonstrate any connected memory units 140 that might be inserted  
14 into controllers 104 and hence form part of the memory space. The orbs and pods  
15 representative of memory devices visually convey an amount of capacity available  
16 for storage.

17 In the described implementation, each of the four controller pods 1604 has  
18 two spheres to represent the three situations where 0, 1, or 2 memory units are  
19 inserted. Each sphere applies a visual cue to inform the user of approximately  
20 how full or empty the memory unit is. Thus, if the controller has one memory unit  
21 that is three-quarters full and a second memory unit that is empty, a first sphere  
22 may be shaded three-quarters and the second sphere may be left unshaded.  
23 Memory units being added or removed while the memory collection screen 1600  
24 is present will be dynamically reflected in the screen.  
25

1 The memory collection screen 1600 also has a metatext panel 1606 that  
2 displays information pertaining to the currently highlighted memory device. Such  
3 information might include the following information:

- 4
- 5 • Textual description of the selected memory device (hard disk drive,  
6 memory unit)
- 7 • Friendly name and location of the memory device (memory unit A,  
8 Steve's MU)
- 9 • Total storage space available on the device in blocks
- 10 • Total storage space left on the device in blocks
- 11

12 The storage space representation for all data on the hard disk and memory  
13 units is in blocks. In one implementation, the block size is 16K bytes. For a  
14 memory unit of 8Mbytes, there are 500 blocks. For an 8Gbytes hard disk, there  
15 are 500,000 blocks.

16 The user navigates among the memory devices by using up, down, left, and  
17 right directions of the joystick, or some other pre-defined control mechanism. A  
18 select element 1608 and a back element 1610 are also provided to enable  
19 navigation from the memory collection screen 1600.

20 Fig. 17 shows an exemplary memory contents menu 1700 that is presented  
21 upon selection of a memory device in the memory collection screen 1600. The  
22 memory contents menu 1700 provides a view of all content data that is currently  
23 available on the selected memory device. It is noted that in the situation where the  
24 user navigates into the memory area from the main menu 700 and no memory  
25 units are connected to the console, the console UI application automatically

1 navigates to the memory contents menu 1700, bypassing the memory collection  
2 screen 1600, to depict the data currently available on the hard disk drive 208.

3 The memory contents menu 1700 depicts a flat list 1702 of game titles and  
4 their corresponding saved games, soundtracks and their associated tracks, and  
5 video clips that are stored on the selected memory device. Each file is represented  
6 by small orbs 1704 arranged in horizontal panes. Each orb has an image that  
7 identifies the contents, such as a game image or the last scene before the game was  
8 saved. The file 1704 has a number associated with it that denotes the total size of  
9 the saved game in blocks.

10 The grouping and order of files are as follows:

- 12 • One pane is dedicated to the memory device. This allows users to select  
13 the device and perform operations such as “Erase” and “Personalize”.
- 14 • N number of panes dedicated to game titles sorted in alphabetical order  
15 with their associated saved games. The saved games are sorted by most  
16 recently saved within each game title.

18 In the games context, the list of files are formatted such that the game  
19 graphic is situated in an orb 1706 located near the title of the game title (e.g.,  
20 “Starcraft”). The orb 1706 is selectable and upon selection, performs a multi-  
21 select on all of the saved games for that title. Each saved game is selectable as  
22 well by navigating to the desired orb 1704. As before, navigation can be achieved  
23 by using the left, right, up, and down directions of the joystick, or other  
24 mechanism.

1 A metatext panel 1708 offers a richer description of the saved game, audio  
2 track, or video clip that is currently focused. This description might include the  
3 following information:

- 4  
5 • Saved Game
  - 6 • 2D image associated with the saved game
  - 7 • Game title the saved game belongs to
  - 8 • Saved game name
  - 9 • Date and Time the game was saved
  - 10 • Total size of the saved game
- 11 • Multiple Saved Games
  - 12 • Generic image representing multiple saved games
  - 13 • Total size of all of the currently selected saved games
- 14 • Game Title
  - 15 • 2D image associated with the game title
  - 16 • Name of the game title
  - 17 • Total number of saved games
  - 18 • Total size in blocks of the game title (sum of saved games,  
19 persistent data, etc.)

20  
21 A top title pane 1710 provides the summary information, such as a friendly  
22 name of the storage device (e.g., “Steve’s Games”), the memory device’s total  
23 storage space in blocks, and the memory device’s storage space left in blocks.  
24 Select and back elements support navigation to other screens.  
25



When the user saves a game to the hard disk drive, a number of metadata elements are copied down into the directory for that saved game. The information that is saved includes:

- A 256x256 pixel Direct3D texture image that accurately represents the saved game. This filename will always have the same name for every saved game. If a game wishes to share a common image between saved games, it is possible to save the meta.img file to the root of the saved games, and as the directories are polled for images, those directories without saved game images will default to the root's meta.img.
- A text file that contains a saved game name pair. The format for this file follows:

#### **Game Description File**

Filename: meta.xbx

Standard INI file format in Unicode

Sections name a language in English

Defines one or more heading/body pairs in each language

[Language 1]

Title1 = Title of saved game

[Language 2]

Title1 = Localized title of saved game

If the [default] tag is used in the language field, this value is used with the current language set in the Xdash is not found in meta.xbx

The user may select more than one saved game at a time. In one implementation, the user focuses on multiple orbs 1704 using, for example, by a

1 controller button mapped to a multi-select operation. If  $n$  files are highlighted and  
2 the user commits the set of selected files while currently on a selected file, every  
3 selected file including the one currently in focus is selected. If  $n$  files are  
4 highlighted and the user commits the set of selected files while not currently on a  
5 selected file, the selection is cancelled and the current file in focus is single  
6 selected. Using the multi-select button on an object that is already selected will  
7 deselect the object. The user can potentially select every object on a memory  
8 device of the same object type.

9 During a multi-select operation, the user is presented with a subset of the  
10 information about the files in the information area. The information displayed  
11 about the files during a multi select includes the number of files and the total size  
12 of the selected files.

13 The multi-select operation is type specific, restricting users to select only  
14 similar media types. For example:

- 16 • If the first object chosen is a saved game, every subsequent multi select  
17 is restricted to a saved game until committed.
- 18 • If the first object chosen is a game title, every subsequent multi select is  
19 restricted to a game title until committed.
- 20 • If the first object chosen is a soundtrack, every subsequent multi select  
21 is restricted to a soundtrack until committed.
- 22 • If the first object chosen is a song, every subsequent multi select is a  
23 song until committed.

1 Attempting to multi select another file type, after a multi select has already  
2 been initiated, will not select the new type nor dismiss the current selection.

3 Fig. 18 shows an exemplary files options menu 1800 that is depicted upon  
4 selection of a file from the memory contents menu 1700 (Fig. 17). The file  
5 options menu 1800 identifies options that are available based on the current  
6 selection of files. The menu 1800 includes a list 1802 of file actions that are  
7 currently available, a metatext panel 1804 containing summary information  
8 pertaining to the file(s), and an orb 1806 containing an image of the file's  
9 associated metadata image. The summary information and metadata image are the  
10 same as shown in the memory contents menu 1700 to provide consistent themes  
11 from menu to menu.

12 As noted above, the options vary according to the selection made. If a  
13 memory device is selected, the file action list 1802 includes the following options:

- 14  
15 • Personalize: This option allows the user to create a custom name for the  
16 selected memory device. The user is presented with a message window  
17 containing the current name of the device, and can overwrite this using a  
18 virtual keyboard. Upon completion, the new device name is reflected in  
19 the memory collection, as well as the device's memory area.
  - 20 • Erase: After a warning and confirmation from the user, this option  
21 removes all titles, soundtracks, and associated data completely from the  
22 current memory device. The user is then returned to the memory  
23 contents menu 1700.
- 24  
25

1 If a game title is selected, the file action list 1802 includes the following  
2 options:

- 3
- 4 • Copy: All saved games for the selected title are brought back out to the  
5 memory collection screen 1600. Once at this screen, the user is able to  
6 select from any of the other available memory devices other than the  
7 source memory device they are copying from. In one implementation,  
8 an icon associated with the title is placed in the current memory location  
9 (e.g., on the hard disk drive) to represent the current collection of saved  
10 games. The user can copy that file to another memory device (e.g., a  
11 portable memory unit) by dragging an icon associated with the file from  
12 the central orb 1602 to the appropriate memory pod 1604 or  
13 highlighting the memory pod 1604 and initiate the copy operation (e.g.,  
14 with the "select" element). The files are copied to the target memory  
15 device in a modal operation. Upon completion, the user is returned to  
16 the memory device they were previously in with no files in selection,  
17 and the first file in focus. If there are no other memory devices  
18 available beyond the hard disk drive, the copy option is disabled.
- 19 • Delete: After a warning and confirmation from the user, all titles saved  
20 games are removed from the current memory device. The user is  
21 returned to the memory contents menu 1700.
- 22

23 If one or more saved games are selected, the file action list 1802 includes  
24 the following options:

25

- Play: A message window notifies the user to place the appropriate game disc in the portable media drive, and the tray is opened. Upon insertion, the title automatically launches into the previously selected saved game. If the user accidentally inserts the incorrect disc, the title will load normally and the instruction to immediately start a previously saved game is ignored.
- Copy: The saved game is brought back out to the memory device collection screen 1600. Here, the user is able to select from any of the other available memory devices other than the source memory device they are copying from. In this view, the current collection of saved games is represented, and when the user initiates the copy, the files are copied to the device in a modal operation. Upon completion, the user is returned to the memory device they were previously in with no files in selection, and the first file in focus. If there are no other memory devices available beyond the hard disk drive, the copy option is disabled.
- Delete: After a confirmation from the user, the saved game is removed from the current memory device. The user is returned to the memory contents menu 1700.

Once an operation is initiated, it is modal and the user cannot navigate away while the operation is occurring. Also, because of unexpected results after an operation has partially completed, an operation cannot be canceled once initiated.

1 If a copy operation is attempted with a group of files that are too large for  
2 the destination memory device, the user is notified of the problem in the memory  
3 collection screen 1600 when choosing the memory device. The user has the  
4 opportunity to select another device, or select the back element to return to the  
5 source device with all of the previously selected files still in focus.

6 If a notification for a power down occurs during one of the following  
7 operations, the process cancels and transitions to a state where it is safe to shut  
8 down. If the operation was a copy, the process does not reflect a copy to the user  
9 next time they reenter the game console UI. If the operation was a delete and a  
10 partial set of the files were removed, the remaining files marked for delete should  
11 be removed at the next power up of the console. The same states remain true if a  
12 memory device was removed during an operation.

13 With reference again to the main menu navigation process 800 of Fig. 8,  
14 suppose that the user fails to select the memory element 708 in the main menu UI  
15 700 (i.e., the “No” branch from block 814). At block 818, the console UI  
16 application 260 decides whether the settings element 710 is selected. If it is (i.e.,  
17 the “Yes” branch from block 818), the console UI application 260 navigates to the  
18 settings area 418 and presents a settings collection menu (block 820).

19 Fig. 19 illustrates an exemplary settings collection menu 1900 that is  
20 presented upon selection of the setting element 710 in main menu 700 (Fig. 7).  
21 The settings collection menu 1900 provides a preview of currently set options and  
22 mechanisms for adjusting the settings. The settings collection menu 1900 includes  
23 a list 1902 of the available settings, an orb 1904 containing an image of the  
24 currently selected setting, and a preview panel 1906 for displaying the currently  
25 set value of the setting.

1 In the illustrated example, the available settings include:

- 2
- 3 • Clock – The date and time are displayed in the preview panel.
- 4 • Language – The currently set language is displayed in the preview
- 5 panel.
- 6 • Audio – The audio connection information is displayed in the preview
- 7 panel.
- 8 • Video – The video format information is displayed in the preview panel.
- 9 • Parental Control – A small sentence noting if parental controls are
- 10 enabled is displayed in the preview panel.
- 11

12 The settings collection menu 1900 is designed to behave as a view on the  
13 currently set values. The user can navigate through the list 1902 by using the up  
14 and down directions of the joystick (or other directions or mechanism). By  
15 selecting an element from the settings menu, the user is taken to another menu to  
16 adjust the value.

17 Fig. 20 is an exemplary clock settings menu 2000 that is presented upon  
18 selection of the “clock” option from list 1902 of the settings collection menu 1900  
19 (Fig. 19). The clock settings menu allows the user to adjust the currently set date  
20 and time. The clock settings menu 2000 includes individual panes 2002 that can  
21 be independently selected and changed as desired. The user can move along the  
22 panes 2002 using the left and right directions of the joystick, while the up and  
23 down will cycle through the available values within each pane. Selection is  
24 confirmed by actuation of select element 2004.  
25

1 A pod 2006 is also presented to render a preview of a “real” world clock or  
2 calendar based on the users current settings. The arrangement, separators, and use  
3 of 24-hour versus 12-hour time are configurable parameters.

4 In one implementation, the ranges of each setting are defined as follows:

- 5
- 6 • Hours cycle from 1 to 12 (or 0 to 23). Incrementing 12 (23) returns the  
7 value to 1 (0). Decrementing 1 (0) returns the value to 12 (23).
- 8 • Minutes cycle from 00 to 59, and wraps appropriately.
- 9 • AM/PM range toggles.
- 10 • Month cycles from 1 to 12, and wraps appropriately.
- 11 • Days cycles from 1 to the appropriate number of days in the selected  
12 month. When February is selected the day can go to 29 even in non-  
13 leap years. If the user selects February 29 and then selects a non-leap  
14 year, the console UI will select February 28. In general, if the user  
15 selects a day that becomes invalid due to a change in the month or year  
16 setting, it will be changed to the highest valid number.
- 17 • Year cycles from 00 to 99, and wraps appropriately. The years map to  
18 2000 – 2099.
- 19

20 Where an online connection is established, the game console may be  
21 configured to update the clock automatically based on a time/date value from an  
22 online source.

23 Fig. 21 is an exemplary language settings menu 2100 that is presented upon  
24 selection of the “language” option from list 1902 of the settings collection menu  
25 1900 (Fig. 19). The language settings menu 2100 includes a list 2102 of the



1 available languages, and an orb 2104 with an image of the earth for aesthetics and  
2 association. In the illustrated example, the languages in list 2102 include English,  
3 Japanese, German, French, Spanish, and Italian. Although not shown here, each  
4 language is preferably rendered in its native language to clear up ambiguity for  
5 users presented with this screen.

6 The user can traverse the list by using up and down directions of the  
7 joystick, or some other suitable control mechanism. The select element 2106  
8 commits a change and navigates the user back to the settings collection menu  
9 1900. The back element 2108 navigates the user back to the settings collection  
10 menu 1900, canceling any changes that were made.

11 Fig. 22 illustrates an exemplary audio settings menu 2200 that is presented  
12 upon selection of the “audio” option from list 1902 of the settings collection menu  
13 1900 (Fig. 19). The audio settings menu allows users to choose between the  
14 different audio output modes based on current A/V capabilities. The audio settings  
15 menu 2200 includes a list 2202 of the available audio options, and an orb 2204  
16 that graphically represents a selected option. For example, one speaker is  
17 illustrated in orb 2204 when mono is focused and two speakers are depicted when  
18 stereo is highlighted.

19 For standard NTSC and PAL packs, the available audio options are:

- 21 • Mono – [Analog out mono signal]
- 22 • Stereo – [Analog out stereo signal enhanced for front center speakers]
- 23 • Dolby Pro Logic – [Analog out Dolby Pro Logic signal]

1 For enhanced A/V packs with digital out, the available audio options  
2 include:

- 3
- 4 • Mono – [Analog out mono signal][Headphone out mono signal][Digital  
5 out mono PCM signal]
- 6 • Stereo – [Analog out stereo signal][Headphone out stereo  
7 signal][Digital out stereo PCM signal]
- 8 • Dolby Pro Logic – [Analog out Dolby Pro Logic signal][Headphone out  
9 Dolby Pro Logic signal][Digital out Dolby Pro Logic PCM signal]
- 10 • Dolby Digital – [Analog out stereo signal][Headphone out stereo  
11 signal][Digital out Dolby Digital]
- 12

13 Similar navigation controls navigate over the list 2202. Selecting the back  
14 element 2206 navigates the user back to the settings collection menu 1900,  
15 canceling any changes that were made. Selecting the select element 2208 commits  
16 the change and the audio settings are changed as the user navigates back to the  
17 settings collection menu 1900.

18 Fig. 23 shows an exemplary video settings menu 2300 that is presented  
19 upon selection of the “video” option from list 1902 of the settings collection menu  
20 1900 (Fig. 19). The video settings menu allows users to choose between different  
21 video display modes. The video settings menu 2300 includes a list 2302 of  
22 available video modes and an orb 2304 that gives an abstract view of the selected  
23 option. Availability of modes is based on the A/V capabilities, but such modes  
24 may include normal (4:3), letterbox (4:3), and widescreen (16:9). If it supports  
25 HDTV (High Definition TV), the console supports a resolution up to 704x480.

1 The user can navigate the list 2302 by moving the joystick up and down.  
2 The back button 2306 navigates the user back to the settings collection menu  
3 1900, canceling any changes that were made. The select button 2308 commits the  
4 change and the video settings are changed, as the user is navigated back to the  
5 settings collection menu 1900.

6 Fig. 24 illustrates an exemplary parental control settings menu 2400 that is  
7 presented upon selection of the “parental control” option from list 1902 of the  
8 settings collection menu 1900 (Fig. 19). The parental control settings menu  
9 provides a mechanism for blocking specific content. The parental control settings  
10 menu 2400 includes a content filter control 2402 in the form of a slider that can be  
11 moved to select different levels of filtering based upon the age-appropriateness of  
12 the audience. In Fig. 24, the filter control 2402 ranges from filtering “All” content  
13 to “None” of the content, with intermittent levels of “Childhood”, “Everyone”,  
14 “Teen”, and “Mature”. An orb 2404 portrays a graphic that indicates whether the  
15 filter is set (e.g., a lock) or not.

16 A metatext panel 2406 provides a summary of the filtering that occurs at  
17 the corresponding highlighted level. Here, the panel 2406 describes the filter for  
18 the “Teen” level. The back button 2408 navigates the user back to the settings  
19 collection menu 1900, canceling any changes that were made. The select button  
20 2410 commits the change and the video settings are changed, as the user is  
21 navigated back to the settings collection menu 1900.

22 It is noted that the filter levels may change depending upon the media type  
23 under review. Fig. 24 shows the parental control options for games. A different  
24 set of options may be presented for movies and music. Furthermore, the options  
25 may vary for different countries.

1 In one implementation, the parental control setting options depend on the  
2 user's region code and the host country's rules against game and movie ratings.  
3 The following outlines a parental control process if no control has yet been set:

- 4  
5 1) Country – The user is presented with a list of countries available for  
6 their specific game region. (For example, in the North America game  
7 region, the user can choose between 'United States', 'Canada', and  
8 'Mexico)
- 9 2) Game content (if applicable to the chosen country) – The user is  
10 allowed to choose between the available game ratings for their country.  
11 For those countries without a game ratings system, an All/None option  
12 is presented.
- 13 3) Movie content (if applicable to the chosen country) – The user is given  
14 the opportunity to choose between the available movie ratings for their  
15 country. For those countries without a movie ratings system, an  
16 All/None option is provided.
- 17 4) Online content – The user is permitted to elect an online level for  
18 filtering content from online sources.
- 19 5) Set password – The user is asked to enter a four action password, and  
20 after a confirmation is returned to the main settings menu.

21  
22 If the user sets the game, movie and online content to "All", the password  
23 screen is bypassed and the parental controls are disabled. If the parental control  
24 has been set, and the user may change the parental control by:

- 1) Parental control password – The user is first verified as the appropriate person to change the controls. The user is presented with a screen and given one chance to enter the correct password. If the incorrect password is entered, the user is navigated back to the main settings menu after briefly depicting an “Incorrect Password” message.
- 2) If the password is correct, the above five-step procedures is repeated as if setting for the first time, except that the values are defaulted to a previous setting.

### **Conclusion**

Although the invention has been described in language specific to structural features and/or methodological acts, it is to be understood that the invention defined in the appended claims is not necessarily limited to the specific features or acts described. Rather, the specific features and acts are disclosed as exemplary forms of implementing the claimed invention.